

New claims

1. Process for producing a protein by heterologous expression in a host microorganism containing a gene sequence encoding the heterologous protein, characterized in that the micro-organism is genetically manipulated to contain a DNA sequence encoding the chaperonin of *Oleispira antarctica* Cpn60 and/or Cpn10 (Seq ID No. 1 and/or 2) or a functional mutant thereof and in using a cultivation temperature of below 25 °C.
2. Process according to claim 1, characterized in that the microorganism is selected from the group comprising animal cell lines, plant cell lines, Gram-positive or Gram-negative bacteria, fungi and yeasts.
3. Process according to one of the preceding claims, characterized in that the chaperonin Cpn60 and/or Cpn10 (Seq ID No. 1 and/or 2) is replaced by a stabilized single ring mutant chaperonin Glu461Ala/Ser463Ala/Val464Ala (Seq ID No. 16) or a mutant chaperonin Lys468Thr/Ser471Gly of Cpn 60 and/or Cpn10.
4. Process according to one of the preceding claims, characterized in that the heterologous protein is selected from the group consisting of mammalian proteins, psychrophilic mammalian or bacterial proteins, mesophilic bacterial, fungal or yeast proteins, and mutant or fusion variants thereof.
5. Process according to one of the preceding claims, characterized in that the heterologous protein has enzymatic activity or hormonal activity in its native conformation.
6. Process according to one of the preceding claims, characterized in that the cultivation temperature is 4 to 15 °C.
7. Plant, characterized in that it can grow at lower ambient temperatures due to the presence of a DNA sequence encoding a cold active functional chaperonin of a psychrophilic bacterium or plant.

2-2005

1-DEZ-2005 12:55

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8. Plant according to claim 7, characterized in that the DNA sequence encoding a cold active functional chaperonin is selected from the group consisting of Cpn60 and/or Cpn10 (Seq ID No. 1 and/or 2) of *Oleispira antarctica*, a functional homolog thereof, and a stabilized single ring mutant chaperonin Glu461Ala/Ser463Ala/Val464Ala of Cpn60 (Seq ID No. 16).
9. Plant according to claim 7 or 8, characterized in that the cultivation temperature is 4 to 15 °C
10. Use of a plant according to one of claims 7 to 9 for the production of protein by heterologous expression.

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